



09-02-03

PATENT
Attorney Docket No. 010500DIV2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: : Polythiophenes, Block Copolymers
McCullough et al. : Made Therefrom, and Methods of
: Forming the Same
: :
Serial No.: 10/634,035 : Group No.: Not Yet Assigned
: :
Filed: August 4, 2003 :

INFORMATION DISCLOSURE STATEMENT

Pittsburgh, Pennsylvania 15222
August 29, 2003

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

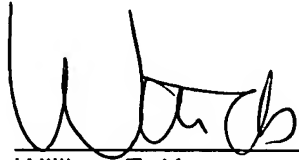
Applicants, in accordance with their duty of disclosure pursuant to 37 C.F.R. § 1.56, hereby advise the United States Patent and Trademark Office of the references listed on the accompanying form PTO-1449 *Information Disclosure Citation*. A copy of the references cited therein are herewith enclosed.

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Respectfully submitted,

A handwritten signature in black ink, appearing to read 'W. E. Kuss', written over a horizontal line.

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PTO/SB/08A (10-01)

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Complete if Known		
				Application Number	10/634,035	
				Filing Date	August 4, 2003	
				First Named Inventor	Richard D. McCullough	
				Art Unit	Not Yet Assigned	
				Examiner Name	Not Yet Assigned	
Sheet	1	of	3	Attorney Docket Number	010500DIV2	
U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	
		Number - Kind Code ² (if known)				
		4,508,639	04/02/1985	Camps et al.		
		4,521,589	06/04/1985	Yamamoto et al.		
		4,929,388	05/29/1990	Wessling		
		4,935,164	06/19/1990	Wessling et al.		
		5,028,354	07/02/1991	Smith et al.		
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		5,358,546	10/25/1994	Rieke		
		5,391,622	02/21/1995	Ho et al.		
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		5,756,653	05/26/1998	Rieke		
		6,025,462	02/15/2000	Wang et al.		
		6,166,172	12/26/2000	McCullough et al.		
		6,190,846	02/20/2001	Majumdar et al.		
FOREIGN PATENT DOCUMENTS						
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Sheet	2	of	3	Attorney Docket Number	010500DIV2
OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published			T ²
		McCullough, "The Chemistry of Conducting Polythiophenes", <i>Advanced Materials</i> , Vol. 10, No. 2, pp. 93-116 (1999)			
		Guillerez et al. "New Convenient Synthesis of Highly Regioregular Poly(3-octylthiophene)Based on the Suzuki Coupling Reaction", <i>Synthetic Metals</i> , Vol. 93, pp. 123-126 (1998)			
		Iraqi et al., "Synthesis and Characterisation of Telechelic Regioregular Head-to-Tail Poly (3-Alkylthiophenes)", <i>Mater. Chem.</i> , Vol. 8, No. 1, pp. 25-29 (1998)			
		Shirakawa et al., "Cross-Coupling Reaction of Organostannanes with Aryl Halides Catalyzed by Nickel-Triphenylphosphine or Nickel-Lithium Halide Complex", <i>Synthesis</i> , pp. 1544-1549 (October 1998)			
		Boymond et al., "Preparation of Highly Functionalized Grignard Reagents by an Iodine-Magnesium Exchange Reaction and its Application in Solid-Phase Synthesis", <i>Angew Chem. Int. Ed.</i> , Vol. 37, No. 12, pp. 1701-1703 (1998)			
		Bao et al., "Soluble and Processable Regioregular Poly(3-hexylthiophene) for Thin Film Field-Effect Transistor Applications with High Mobility", <i>Appl. Phys. Lett.</i> , Vol. 69 (26), pp. 4108-4110 (1995)			
		Chen et al., "Regiocontrolled Synthesis of Poly(3-alkylthiophenes) Mediated by Rieke Zinc: Their Characterization and Solid-State Properties", <i>J. Am. Chem. Soc.</i> , Vol. 117, pp. 233-244 (1995)			
		Mao et al., "Synthesis and Structure-Property Relationships of Regioirregular Poly(3-hexylthiophenes)", <i>Macromolecules</i> , Vol. 26, pp. 1163-1169 (1993)			
		McCullough et al., "Design, Synthesis, and Control of Conducting Polymer Architectures: Structurally Homogeneous Poly(3-alkylthiophenes)", <i>J. Org. Chem.</i>			
		Farina et al., "Palladium-Catalyzed Coupling of Arylstannanes with Organic Sulfonates: A Comprehensive Study", <i>J. Org. Chem.</i> , Vol. 58, pp. 5434-5444 (1993)			
		Yamamoto et al., "Preparation of π -Conjugated Poly(thiophene-2,5-diyl), Poly(p-phenylene), and Related Polymers Using Zerovalent Nickel Complexes. Linear Structure and Properties of the π -Conjugated Polymers", <i>Macromolecules</i> , Vol. 25, pp. 1214-1223 (1992)			
Examiner Signature				Date Considered	



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		Art Unit	Not Yet Assigned		
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Sheet	3	of	3	Attorney Docket Number	010500DIV2
OTHER PRIOR ART OR NON-PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published			T ²
		Liu et al., "Employing MALDI-MS on Poly (alkylthiophenes): Analysis of Molecular Weights, Molecular Weight Distributions, End-Group Structures, and End-Group Modifications", <i>Macromolecules</i> , Vol. 32, pp. 5777-5785 (1999).			
		United States Patent Application Serial No. 10/417,244, filed April 16, 2003 with Preliminary Amendment (Attorney Docket No. 010500DIV)			

Examiner Signature		Date Considered	
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